

REMARKS**Summary of the Office Action**

Claim 4 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,699,261 to Muona ("Muona").

Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,934,387 to Tuunanen ("Tuunanen").

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tuunanen in view of U.S. Patent No. 5,560,437 to Dickel et al. ("Dickel").

Summary of the Response to the Office Action

Applicant has amended claims 1, 4 and 5.

Claims 1-5 are pending.

All Claims Define Allowable Subject Matter

Claim 4 is rejected under 35 U.S.C. § 102(b) as being anticipated by Muona. Applicant respectfully traverses the rejection under 35 U.S.C. § 102(b), of claim 4. Applicant has amended claim 4 to particularly point out and distinctly claim Applicant's invention. Support for claim 4 is provided at, for example, paragraph 0007 of Applicant's specification as originally filed.

Claim 4 recites a rock breaking machine, including a body, a percussion device arranged inside the body to generate impact pulses to a tool, one or more sensors arranged to measure the operation of the rock breaking machine, and a control unit. The sensors are arranged to transmit measuring information to the control unit. The control unit includes a memory unit for storing

basic settings for the rock breaking machine, and a processing unit arranged to form parameters describing the operating state of the rock breaking machine on the basis of the basic settings and measuring information. A data communications link enables communication between the control unit and at least one unit external to the rock breaking machine for controlling the operation of the rock breaking machine so as to achieve the desired operating state of the rock breaking machine.

The Office Action relies on column 2, lines 9-12 of Muona, to support that one or more sensors 7 are arranged to monitor the operation of the apparatus. Applicant respectfully disagrees with the Office Action's interpretation of the reference. As described in the cited text, the aim of Muona is to find out if the desired settings are appropriate and to detect if any illogical or faulty operations occur when different control parameters are applied. Applicant submits that in Muona, the idea is to provide an electronic control unit 1 with a basic memory for factory settings, and with an operator memory into which the operator may store desired parameters. See, for example, column 1, lines 50-62, of Muona. As explained at column 2, lines 13-21, Muona makes it easy for the operator to try different parameters and if the result is not satisfactory, the original basic settings can be reintroduced. As further mentioned at column 2, lines 21-24, the adjusting procedures and testing of the parameters are simple, and set values proved to be appropriate can be stored to the operator memory.

In order to test the parameters which the operator has inputted by a control member 8, such as a joystick, a diagnosing unit 7 is used. The diagnosing unit 7 is connected to a control line 9 of the control member 8 and to an adjustment line 10 of the operation unit 5. See column 3, lines 23-26. Diagnosing is performed so that the control value of the control member 8 is

compared with the adjustment value applied from the control unit 5. If the values differ from each other by more than a predetermined maximum difference value, the indicating element 11 indicates that the value set by the control member 8 and the resultant adjustment value do not correspond to each other. This is used for detecting that there is a failure in the equipment, and to locate whether the failure is in the control member (joystick), or in the operation unit. See column 3, lines 47-51. In claim 4 of Muona, the operation of the diagnosing unit is described such that the diagnosing unit compares the control value in the control signal line with the adjustment value in the adjustment line and indicates how the values correspond to each other.

Applicant respectfully submits that Muona does not teach at least the features of one or more sensors arranged to measure the operation of the rock breaking machine, as recited in claim 4. Moreover, Muona does not teach a control unit, as recited in claim 4. Accordingly, it is requested that the rejection under 35 U.S.C. § 102(b), of claim 4, be withdrawn.

Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuunanen. Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tuunanen in view of Dickel. Applicant respectfully traverses the rejection under 35 U.S.C. § 102(b), of claims 4 and 5, and the rejection under 35 U.S.C. § 103(a), of claims 1-3.

Regarding Tuunanen, the Office Action states that Tuunanen discloses one or more sensors 6, 8, 9, 10 arranged to the rock drilling apparatus to monitor the operation of the rock drilling apparatus. The Office Action refers to column 3, lines 20-24, wherein it is mentioned only that “three measuring devices 6a-6c are attached to the base 1 of the rock drilling equipment in a fixed position relative to the base.” Applicant submits that the Office Action does not properly distinguish the terms “rock drilling rig” and “rock drilling apparatus” of the instant

invention. Accordingly, a marked up version of Fig. 1 of the instant application is attached hereto as Exhibit A, to clarify the use of these terms in an embodiment of the invention.

Applicant respectfully submits that the aim in Tuunanen is to measure a position of a tool relative to a base. See claim 1, lines 42-47 of Tuunanen. In order to measure the position data, measuring devices 9a-9c and 10a-10c of the feed beam are mounted in each feed beam 3a-3c at certain position in each feed beam. See column 3, lines 26-28. Thus, in Tuunanen, a rock drilling rig (including base 1, feed beams 3a-3c, rock drilling apparatus 4a-4c) is provided with measuring devices 9a-9c. However, Tuunanen does not mention anywhere that any measuring device is arranged to the rock drilling apparatus 4a-4c. Furthermore, Tuunanen does not disclose any second control unit arranged to the rock drilling apparatus 4a-4c. Tuunanen only discloses one single control unit 7 placed on the carrier 1 of the rock drilling rig.

Furthermore, the Office Action refers to column 3, lines 47 and 66, and states that Tuunanen discloses that the control unit 7 is a processing unit that is capable of storing data, calculating, processing the data and controlling the operation on the machine. However, in Tuunanen the position of the base 1 relative to the coordination is firstly determined and thereafter the position of each feed beam 3a-3c can be determined relative to the base 1, as the cited text portion teaches. In Tuunanen, the operation of the rock drilling apparatuses 4a-4c are not monitored, the control unit 7 does not comprise a memory unit for basic settings for the rock drilling apparatuses 4a-4c, and further Tuunanen does not disclose any processing unit for calculating parameters describing the operating state of the rock drilling apparatuses 4a-4c.

Thus, Applicant respectfully submits that Tuunanen does not teach at least the features of one or more sensors arranged to measure the operation of the rock breaking machine, as recited

in claim 4. Moreover, Tuunanen does not teach a control unit and at least one unit external to the rock breaking machine for controlling the operation of the rock breaking machine, as recited in claim 4. Claim 5 depends from claim 4 and recites the same combination of allowable features recited in claim 4, as well as additional features that define over the prior art. For example, in Tuunanen the control unit 7 is located on the carrier 1, not inside the body of the rock drilling apparatus 4a-4c. Thus, Tuunanen does not teach the features of the control unit is arranged inside the body of the rock breaking machine and at least some of the sensors are part of the control unit, as recited in claim 5. Accordingly, it is requested that the rejection under 35 U.S.C. § 102(b), of claims 4 and 5, be withdrawn.

Applicant respectfully submits that Tuunanen does not teach or suggest at least the features of one or more sensors arranged to the rock drilling apparatus to measure the operation of the rock drilling apparatus, as recited in claim 1. Moreover, Tuunanen does not teach or suggest at least one first control unit arranged on the carrier of the rock drilling rig to control the operation of the rock drilling apparatus on the basis of measuring information received from the sensors, and a second control unit arranged to the rock drilling apparatus, as recited in claim 1. Applicant submits that Dickel fails to overcome the above described deficiencies of Tuunanen. Dickel is directed to a telemetry method for measuring cable-drilled holes, as mentioned at col. 1, ll. 55-56. That is, the operation of a rock drill is not measured in Dickel, but instead the drill hole is being measured. Furthermore, at col. 3, ll. 11-12, Dickel discloses that the probe 1 is conveyed to its logging location in the region of a drill bit 5 by the drilling mud. Thus further confirming Applicant's position that the operation of the rock drill machine is not measured in Dickel.

Claims 2-3 depend from claim 1 and recite the same combination of allowable features recited in claim 1, as well as additional features that define over the prior art. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claims 1-3, be withdrawn.

Applicant submits that all pending claims, *i.e.* claims 1-5, are in condition for allowance.

CONCLUSION

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing all pending claims in condition for allowance. Applicant submits that the claim amendments do not raise new issues or necessitate additional search of the art by the Examiner.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite the prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0573. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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